

Applicant: Jaakko Haapanen  
Application No.: 10/534,907  
Response to Office action dated Jan. 18, 2008  
Response filed Apr. 16, 2008

### Claim Listing

1–13. (cancelled)

14. (currently amended) ~~The device of claim 11 further comprising:~~ A core locking device in a two-drum winder, comprising:

a locking member for locking the core locking device to a winding core of a roll to be wound on the two-drum winder, which core locking device is placed on a slide arranged in connection with the two-drum winder, which core locking device moves, as winding progresses, with a center of the roll being formed along the slide, the core locking device moving with the center of the roll being formed forwards on the slide, so that the core locking device will gradually be at an angle with respect to the slide, with the result that a force is produced in the center of the roll because of the weight of the core locking device;  
an actuator arranged to produce a counterforce for the force caused by the mass of the core locking device in the changed position of the core locking device;  
a frame structure mounted to the slide, the locking member[[s]] being pivotably mounted to the frame structure; and  
an angle sensor arranged in connection with the actuator for measuring the pivoting angle of the locking member[[s]] with respect to the frame structure to determine the magnitude of the necessary counterforce.

15. (currently amended) The core locking device of claim 14 wherein the actuator and the sensor are arranged to form an active damper in which the action of the actuator is changed based on the measurement result provided by the sensor.

16. (cancelled)

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17. (currently amended) The core locking device of claim 14 wherein the actuator and the sensor are arranged to serve as a device that detects ~~and/or eliminates~~ a bouncing phenomenon.

18–20. (cancelled)

21. (currently amended) A core locking device for use with a two-drum winder having a first drum and a second drum, and a roll being wound thereon on a winding core, the two-drum winder having an upwardly extending slide, the core locking device having a weight and comprising:

a locking member[[s]] for locking the core locking device to the winding core of the roll;

a frame structure mounted to the slide; the locking member[[s]] being pivotably mounted to the frame structure so that during winding of the roll on the two-drum winder, the locking member[[s]] pivots with respect to the frame structure and the slide;

a sensor disposed to measure ~~[[the]]~~ a pivoting angle of the locking member[[s]] with respect to the frame structure; and

~~an actuator extending between the locking members and the frame structure, the~~ actuator arranged to respond to the sensor to produce a counter force to a force caused by the weight of the core locking device as it ~~[[is]]~~ pivots on the frame structure and to apply said counter force to the locking member.

22. (currently amended) The core locking device of claim 21, wherein the actuator is a hydraulic cylinder.

23. (currently amended) The core locking device of claim 21, wherein the actuator is a semi-rotary actuator.

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24. (currently amended) The core locking device of claim 21 wherein the actuator and the sensor are arranged to form an active damper in which the action of the actuator is changed based on the measurement result provided by the sensor.

25. (currently amended) The core locking device of claim 21 wherein the actuator is arranged to form a passive damper in which the actuator is a hydraulic cylinder, a change in damping being achieved by changing the flow of the hydraulic cylinder.

26. (currently amended) The core locking device of claim 21 wherein the ~~device is configured for use in a two-drum winder which~~ uses as one winding drum a set of drums around which a belt has been disposed, and wherein in a starting position of winding, a core is supported on the belt, the belt being subject to wear over time which causes the location of the starting position to change, the change of the starting position of winding caused by wear of the belt being capable of being compensated for by the location of the core locking device.

27. (currently amended) The core locking device of claim 21 wherein the force caused by the mass of the core locking device is static or dynamic.

28. (currently amended) The core locking device of claim 21 wherein the core locking device is disposed in connection with a variable geometry two-drum winder.

29. (cancelled)

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30. (currently amended) A method for winding a paper roll on a two-drum winder, comprising the steps of:

winding the paper roll about a core having a center which is supported on the two-drum winder, the core being locked to a locking member[[s]] of a core locking device, the locking member[[s]] being pivotably mounted to a frame structure which is mounted to a slide arranged in connection with the two-drum winder;

as winding progresses on the two-drum winder, measuring [[the]] a pivot angle between the frame structure and the locking member[[s]], the core locking device moving with the center of the roll being formed along the slide so that the locking member[[s]] pivots with respect to the frame structure and the slide, with the result that a force is produced in the center of the roll because of the weight of the core locking device; and  
producing a counterforce for the force caused by the weight of the core locking device as its position changes, and applying the counterforce to act upon the roll center.

31. (currently amended) The method ~~device~~ of claim 30 further comprising the steps of measuring the pivot angle ~~and producing a counterforce to detect and/or eliminate a~~ bouncing phenomenon.

32. (currently amended) The method ~~device~~ of claim 30 wherein the measurement of the pivot angle and the production of the counterforce serve to perform active damping.

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33. (currently amended) The method ~~device~~ of claim 30 wherein the step of producing ~~[[a]]~~ the counterforce comprises applying a force through an actuator which extends between the locking members and the frame structure.

34. (currently amended) The method ~~device~~ of claim ~~[[39]]~~ 30 wherein the two-drum winder uses as one winding drum a set of drums around which a belt has been disposed, and wherein in a starting position of winding, a core is supported on the belt, the belt being subject to wear over time which causes the location of the starting position to change, and further comprising the step of compensating for ~~[[a]]~~ the change of ~~[[a]]~~ the starting position of winding caused by wear by calibrating the position of the core locking device and inferring the wear of the belt from the change in the location of the starting position.

35. (new) The core locking device of claim 17 wherein the actuator and the sensor are arranged to serve as a device that detects and eliminates a bouncing phenomenon.

36. (new) The method of claim 31 further comprising the step of producing a counterforce by means of the actuator to eliminate the bouncing phenomenon upon detection thereof.